

Alluvial soils were found in association with the numerous drainage features which cross the project. These soils are predominantly gray to black silty sands (A-2-4) with organics in the western half of the project. Gray to brown to tan silty and sandy clays (A-6, A-7) and silts (A-4) with some gray to brown silty and clayey sand (A-2-4, A-2-6) are present in the eastern half of the project. The alluvial clays and clayey sand are moderately to highly compressible while the alluvial silts and sands are slightly to moderately compressible.

Artificial fill soils are present in one location along the project. The artificial fill soils makeup the dam for a hog waste lagoon and is composed of residual surficial clayey soils. Hog waste fills the interior of the lagoon and is composed of highly organic fecal matter, which is a biological hazard. These soils were not sampled due to environmental concerns.

Roadway embankment soils are present on the project in small quantities near the existing roads but were not sampled. No problems are anticipated with the existing roadway embankment soils.

Rock Properties

Hard rock was encountered in several locations across the project. Most of the rock was encountered in areas under proposed fills and was exposed at the surface in one location. There were two types of rock encountered above grade. Near -Y7- (Corbett Rd.) Coastal Plain quartzite was encountered above the residual soils. This quartzite is very hard but occurs in lenses or boulders less than 2 meters thick. Another rock type is metamorphosed granite, which is also very hard but is much more continuous in thickness. This granite was also encountered in the area of a proposed channel change along -Y11-REV.

Groundwater

Groundwater was encountered throughout the project. Groundwater was encountered as high as 4.2 meters above the proposed grade and was above or within 2 meters of grade in nine different areas. The groundwater table is subject to seasonal fluctuations of about 3 meters based on standpipe data measured monthly in different areas of the project. Heavy rainfall events would cause the water table to rise even more but usually for only short periods of time.

Geotechnical Descriptive Analysis of the Project

For descriptive purposes the project has been divided into two segments based on subsurface conditions.

Station	58+00	to	85+80	-L-
	11+82	to	16+50	-Y7-DET

This segment begins west of -Y7- (Corbett Road) and ends west of -Y11- (Ranch Road). The terrain is generally flat with meandering creeks in wide floodplains. There is a general downward grade to the east with an elevation range of 100.7 meters at -Y7- to 83.5 meters at the end of this segment. The construction in this segment generally consists of 3 to 7.5 meter cuts

from Station 58+00 to 72+00 -L- and 5 to 11 meter fills from Station 72+00 to 85+80 -L-. Coastal Plain soils were encountered in all but one boring within this segment. These soils predominantly consist of red-brown, orange-brown, tan, and gray, very soft to very hard, moist to wet silty and sandy clay (A-6, A-7-5, A-7-6) and red-brown, orange-brown, tan, and gray, very loose to medium dense, moist to saturated, silty and clayey sand (A-2-4, A-2-6, A-2-7). Other Coastal Plain soil present in isolated areas include red-brown, tan, and gray, very soft to stiff, moist to wet, sandy and clayey silt (A-4, A-5) and red-brown, tan, and gray, loose to medium dense, moist to saturated coarse sand and silty sand (A-1-b). The coastal plain clays have low to high plasticity indices (11 to 46) but are generally below 26 for this area.

Residual soils were encountered at several locations within this segment of the project. The residual soils were usually encountered at depths greater than 5 meters except in the last 300 meters of this segment where the Coastal Plain soils taper out. The residual soils are predominantly red-brown, orange-brown, tan, and gray, soft to stiff, wet, silty and sandy clay (A-7-5, A-7-6) with some mica. Other soils present in isolated areas were tan to gray, medium stiff to stiff, wet, sandy silt (A-4, A-5) and tan, loose, wet, micaceous silty sand (A-2-4). The residual clays have low to high plasticity indices (14 to 49) with the highest plasticity clays occurring in the first 800 meters of this segment. These very high plasticity clays (PI from 36 to 49) seem to have developed when underlying Coastal Plain sands. The residual clays underlying coastal plain silts and clays or alluvial sands have much lower plasticity indices (14 to 27).

Alluvial soils were encountered within the floodplains of several unnamed tributaries to White Oak Creek and Little Creek. These soils generally consist of gray to black, very loose to loose, wet, slightly to highly organic (1.9 – 22%) silty fine to coarse sand (A-2-4, A-2-5) with occasional layers of silt and clay. The non-organic sands are slightly compressible while the more organic soils are moderately to highly compressible.

Rock was encountered in two locations for this segment of the project at 0.8 meters above grade in a cut area and 18.3 meters below grade in a fill area. The rock encountered was coastal plain quartzite, which is very hard but appears to occur in lenses or boulders less than 2 meters thick. The rock was cored in the vicinity of -Y7- (Corbett Rd.) and produced two layers of quartzite approximately 0.5 meters and 1.1 meter thick with a stiff clay layer between.

Groundwater was encountered in all but the first boring of this segment of the project. Groundwater was encountered as high as 4.2 meters above the proposed grade and was above or within 2 meters of grade in all areas of proposed cut within this segment.